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A STORY OF WHEAT

by

E. Cora Hind



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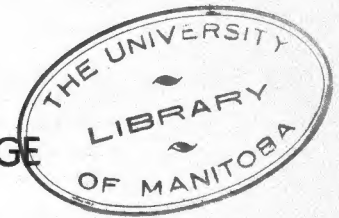
THE FIRST SHIPMENT OF WHEAT

from

WESTERN CANADA

on

OCTOBER 21ST, 1876 V



SESSION NUMBER

7077

Foreword

By

T. J. Harrison, President, Canadian Seed Growers' Association.



On June 15th, 1932, the Canadian Seed Growers' Association at their annual convention held in Winnipeg, commemorated the first shipment of wheat from Western Canada. As recorded by Miss E. Cora Hind, this shipment took place by boat up the Red River from Winnipeg on October 21st, 1876. The cargo consisted of 857 1-6 bushels of Red Fife wheat consigned by Higgins & Young of Winnipeg to R. C. Steele, Seed Merchant, Toronto (later known as the Steele-Briggs Seed Co.), for distribution as seed among the farmers of Eastern Canada.

The high quality of this seed wheat and its trueness to variety so valued by Mr. Steele has been continued to this day by the efforts of the members of the Canadian Seed Growers' Association, and unquestionably is one of the major reasons why Canadian wheat on the world's markets commands a substantial premium over wheat exported by other countries.

It has been estimated that this high quality in Canadian wheat has brought to the farmers of Western Canada, at least the sum of \$200,000,000 more than they would have received had Canadian wheat been only of the same quality as that exported by competing countries.

The story by Miss Hind accurately and clearly describes the beginnings and the growth of the vast Canadian wheat industry which has developed during the course of a single lifetime from a shipment of 857 bushels in 1876, of a total value of \$728.00, to the high peak in 1928-29 of over 407,000,000 bushels, exported as wheat and flour, and valued at approximately \$470,000,000.

The commemoration consisted of the erection of a cairn by the Manitoba Government at the corner of Lombard and Mill Street, Winnipeg, on the exact spot where the farmers delivered their grain to Higgins and Young at McMillan's Mill for shipment up the Red River. The members of the Association present at the commemoration ceremony travelled by boat from the site of McMillan's Mill up the river over the same route that the wheat was shipped as far as the Manitoba Agricultural College.

A Story of Wheat

By E. CORA HIND

THE story of the growing of wheat is practically the story of the development of civilization.

Peter Tracey Dondlinger, in "The Book of Wheat," issued in 1910, and which was the result of 15 years of study and research, tells us that neither the geographical, historical nor biological origin of wheat is fully established, but of the antiquity of its use there is no doubt. The most ancient languages mention it, proof has been found that the Swiss of the Neolithic period cultivated four varieties of it. The Chinese, who considered it a gift from Heaven, were cultivating it 3000 years B.C. Homer and Diodorus Siculus say it grew wild in Sicily.

A. H. R. Buller, Professor of Botany at the University of Manitoba, in his "Essay on Wheat," issued in 1919, gives some interesting data on the history of wheat showing that the earliest sarcophagi of Egyptian mummies contained wheat, these dating back to 6000 B.C. and takes the opportunity, once again, to explode the myth that wheat found in Egyptian tombs will grow. Many a hard-earned dollar of western farmers has gone to the purchase of "mummy" wheat at fabulous prices. Dr. Buller

also quotes the story of the origin of wheat as given in Greek mythology, which is possibly the most fascinating of all the fabled stories of the origin of the world's greatest bread cereal. The Goddess Demeter, enraged by Hades having carried off her daughter Persephone made the earth barren; later relenting she gave to mankind the gift of wheat. Temples were raised to Demeter as Goddess of Agriculture, the principal ones at Athens and Eleusis, where fields were solemnly ploughed every year in memory of the first sowing. As late as 496 B.C., following a severe drouth, the cult of Demeter was introduced into Italy, where the name was changed to Ceres, and a temple raised to the Goddess on one of the seven hills of Rome. To-day the name of Ceres is given to one of the new hybrid wheats.

Dr. Buller, however, brings the origin of wheat out of the myths of Greece and Rome by relating the discovery in 1904 by Aaron Aaronsohn, of the Jewish Experiment Station at Haifa, of the wild wheat of Palestine at Rosh Pindar, at the foot of Jebel Safed, and on the eastern slope of Mount Hermon, where it was growing at 5,250 feet above sea level. Aaronsohn dwells on the brittle



Wheat crop, 1930, on farm of L. Canning, two miles north of Grand Prairie, Peace River, yielded 45 bushels to the acre.

character of the rachis from which the grain flew off at the lightest shake, thereby facilitating the scattering of the seed and making for rapid distribution of the plant. Samples of this wild wheat have been grown at Bard, California.

The extent to which wheat is grown over the earth's surface is no less interesting than its origin. Just how it spread is not much more definitely known than its origin, but where it is, and can be successfully grown, is a matter of fact. Wheat, to a greater or less extent, is grown in almost every country of the world. Spring wheat has matured perfectly at Rampart, which is 65 degrees 30 minutes north latitude, or, in other words, within 200 miles of the Arctic Circle, and thrives in southern Brazil, Cuba, and southern Rhodesia in South Africa, which vary between 20 to 25 degrees south latitude. The altitudes at which it has been produced vary all the way from 100 feet below sea level to 11,000 feet above sea level, this latter on the Himalaya Mountains. These facts seem to indicate clearly its suitability as a general food for mankind.

It is, however, more particularly with wheat in western Canada that this article has to deal.

Here neither myth nor legend has to be considered, for while the growing of vegetables was carried on by the agents of the Hudson's Bay Company soon after the arrival of the "Gentlemen Adventurers," and later more extensively by those of the North West Company, the growing of wheat began with the Selkirk Settlers, who arrived from Scotland via Hudson Bay and York Factory in the August of 1812 to colonize the 116,000 square miles which Lord Selkirk, with a view

of aiding the evicted crofters of his own land, had secured from the Hudson's Bay Company.

These people had brought with them from Scotland small quantities of both winter and spring wheat, and that August when they arrived they immediately set about preparing small plots of ground for the sowing of the winter wheat. [They had no ploughs and only spades and hoes,] and the task of preparing even the smallest areas with such implements must have been tremendous, but it was done, and part of it seeded with the winter wheat. Next spring the balance of what they had been able to prepare was seeded with the spring wheat. Both crops were a total failure, and small wonder; there had been no time for the tough Red River Valley sod to rot or the land to warm and mellow.

Fortunately, they had better luck with vegetables and the potato crops of both 1813 and 1814 were fairly good, as was the turnip crop and the crop of some other vegetable. Not only did the wheat crop of 1814 prove a failure also, but peas, beans, rye, hemp and Indian corn all failed. Even with such a general failure, there was then as now, the odd man who succeeded in having a crop; he planted four quarts of seed and reaped 12½ bushels, a yield which would be regarded with some considerable favour in these days. From 1814 to 1824 it seemed as if the cultivation of wheat in the Canadian west was pursued by an evil fate. The birds of the air, more especially the passenger pigeons, now extinct, devoured it, the servants of the Northwest Company trampled it underfoot, and in the raid of 1815 Fort Douglas was burned by them.



E. CORA HIND

who is commercial and agricultural editor, Manitoba Free Press, was born in Toronto and went to Winnipeg in 1882. Two years later she entered the law firm of Macdonald & Tupper, as first girl typist west of the Great Lakes. In 1896 she was elected secretary, Manitoba Dairy Association, and established through aid of the Free Press the first butter market reports for the west. In 1901 Miss Hind joined the staff of Manitoba Free Press as market and agricultural reporter, and in 1904 made the first crop estimate. This came within half a million bushels of the actual crop. In the intervening years she has developed the crop reporting and estimating service of the Free Press, recognized by Canadian and United States Governments and the Corn Trade of Liverpool, as one of the most consistently accurate services of the kind.



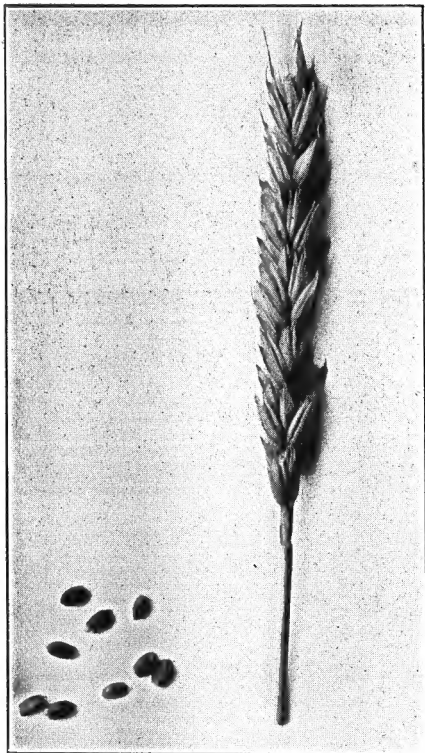
Canadian Gov't Motion Picture Bureau photograph.

Heads of "Marquis" wheat. For several years this was the finest spring wheat known, and to-day forms by far the greater part of the wheat crop of Western Canada.

Many of the settlers left then and did not return. They made their way to Ontario, then Upper Canada, by canoe. Thirteen families made their way up Lake Winnipeg to Jack River; one John McLeod and three companions seem to have been the only ones who remained and with a three-pounder cannon loaded with links of chain drove off the marauders for the time being. When the families who had fled to Jack River were persuaded to return they found the crops that had been trampled and apparently destroyed in June, marvellously recovered. Quite a good harvest was reaped that autumn.

✓ In November of that year Governor Semple, sent out from Scotland, arrived and found himself with 120 persons to care for and at once set about counting stores. In a letter to Lord Selkirk he tells of how, after careful calculation, that, setting aside 40 bushels for seed, he could allow two pounds of grain per day for each person to see the colony through the winter of 1815-16.

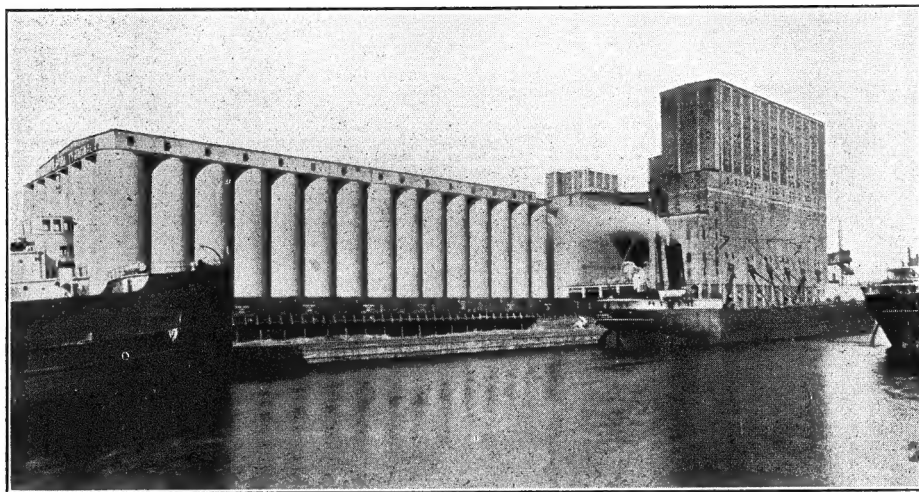
✓ The 40 bushels saved for seed were sown in the spring of 1816, made good growth, and up to June 19th gave promise of a fine harvest, when once more the Northwest Company swooped down on the little colony. The battle, or rather



A head of "Garnet" wheat. This wheat, which is the result of the crossing of several different varieties, is claimed to ripen from 10 to 12 days earlier than "Marquis."

the massacre, of Seven Oaks followed. Governor Semple and 20 of his men were left dead on the field, the balance of the colonists once more fled to Jack River, and no harvest was reaped by them that year. Early in 1817 a force sent by Lord Selkirk from Fort William arrived, Fort Douglas was recaptured, and the colonists at Jack River came back. Though it was late, a limited amount of wheat was sown on land which must have been poorly prepared as there were still no ploughs. Ross, the historian, is not very definite as to where the seed of that year came from, merely stating that "so little was sown, owing to the lateness of the season and difficulty in procuring it," that in spite of bountiful yields, the members of the colony were threatened with famine unless they consumed their all, and ruined their prospects for the next year. The colonists decided to go to Pembina, and draw supplies from the hunting of buffalo. The account of that awful journey is so poignant that after a lapse of over 100 years it is difficult to read dry-eyed.

After almost incredible hardships, not the least of which, to persons of Scottish blood, was that of being practically slaves to the Indian during that winter, in the spring they struggled back to the colony and seeded the wheat and barley which at such fearful sacrifice they had left stored during the winter.



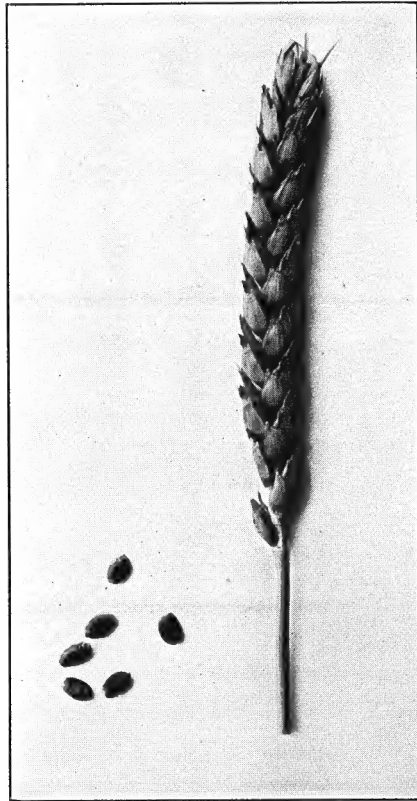
Bridgen's Ltd. photograph.

Terminal, Fort William. Capacity 7,000,000 bushels storage.

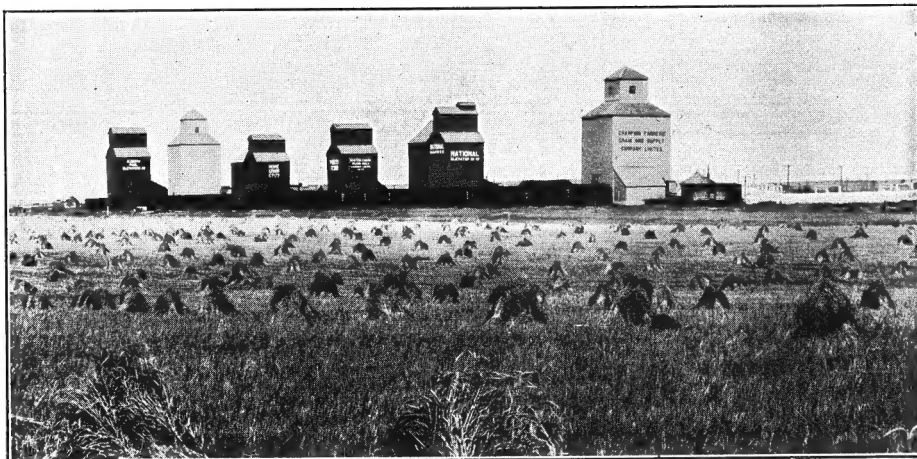
While the crop was growing they who watched it were nearly starved, as fish, herbs and roots on which they tried to subsist almost failed, but, to quote Elder Ross:—"the crop looked healthy and vigorous and promised a rich harvest when lo! just as the corn (wheat) was in the ear, and barley almost ripe, a cloud of grasshoppers from the west darkened the sky and fell like a heavy snow on the devoted colony. Crops, gardens, every green herb had perished, with the exceptions of a few ears of the barley, half-ripe, which the women gleaned in their aprons. The unfortunate emigrants, looking up towards heaven, wept."

The winter of 1818-19 was a repetition of the miseries and horrors of the one in the camp at Pembina, and once again the indomitable Scots struggled back to the colony, prepared ground with great care and sowed the little hoard of seed which the women had gathered in their aprons the year before, only to have the larvae left in the ground breed millions of grasshoppers that destroyed every green thing. There was no seed left in the colony so that all wheat of British origin disappeared.

The next attempt was to secure a supply of seed from Prairie du Chien, Wisconsin, and after a three months journey on snowshoes delegates sent by the colony reached that place, secured 250 bushels of seed, loaded them on

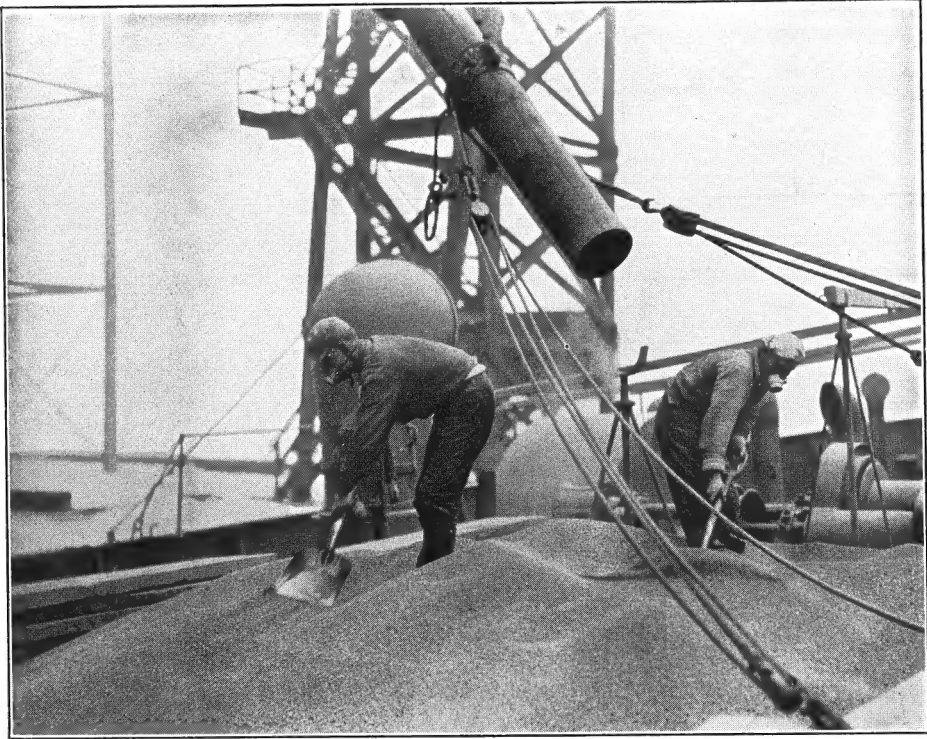


"Reward," winner of numerous prizes, both in Canada and the United States.



Canadian Gov't Motion Picture Bureau photograph.

Grain elevators. Sights such as this greet the eye all the way across the prairie provinces.



Canadian Gov't Motion Picture Bureau photograph.

Levelling off grain on a vessel just loaded at Vancouver elevator.

flat boats in the spring of 1820, and coming by the Mississippi and Minnesota rivers, Big Stone Lake and the Red River, finally landed it at the colony in June. It was sown at once, made good growth, and though it did not ripen fully, matured sufficiently for seed and from that date, for 48 years, the colony was never without seed wheat.

While the wheat was on its way in the spring of 1820, Lord Selkirk, founder of the colony, died in France, but his executors paid the sum of \$5,000 which the 250 bushels of seed cost to bring in. Nothing is recorded of its variety, probably no one knew; it was just wheat, but there is a dark legend to the effect that "stinkweed" was introduced into the colony with that seed.

The Hudson's Bay and North West Companies having amalgamated in 1821, the colony on the Red River had more peaceful times. The crop of that year was not large, and after seed was saved many of the people lived in a state of almost semi-starvation until another

crop was reaped. The amount of wheat seeded in the spring of 1822 was 235 bushels, and of barley 142 bushels.

In 1824, fully 12 years after arriving at Red River, the colonists had ploughs and that year they had their first really good crop, though, oddly enough, the heaviest yields, 68 bushels to the acre, were from the hoed fields, the ploughed fields yielding 44.

In 1825 the plague of mice destroyed much of the crop in stack. In 1826 what was to be known for many years as "the great flood," not only destroyed much property but delayed seeding until June 22nd yet wheat and barley sown on that date matured. From 1827 to 1849 crops appear to have been sown and reaped with varying success, and by the latter year, when the first census was taken, 6,000 acres were under cultivation, and there were 492 ploughs and 576 harrows.

Crops were delayed by serious floods in 1852 and 1861; grasshoppers reappeared in 1857-58-64-67 and finally destroyed

A STORY OF WHEAT



The advent of the machine has all but driven the horse out of the harvest fields of western Canada. Scenes such as the above are rare to-day on any large wheat farm.

every vestige of crop in 1868. In that year the colonists had to appeal for outside aid, and the seed wheat for the sowing of 1869 came in by way of St. Paul on ox carts and sleighs, 610 miles across the prairie. There appears no record of the variety or varieties of the wheat procured. The year 1869 brought crops other than wheat, for in that year the first "Riel Insurrections" occurred. The details have no place in this story except that the unsettled state of the country curtailed the seeding of 1870.

In 1870 the Province of Manitoba was formed, when the actual Winnipeg of that day had 215 permanent residents. With the formation of the Province the historians have given more space to political issues than to wheat-growing, but apparently it went forward fairly steadily. New settlers coming in, quite a number from Ontario, no doubt,

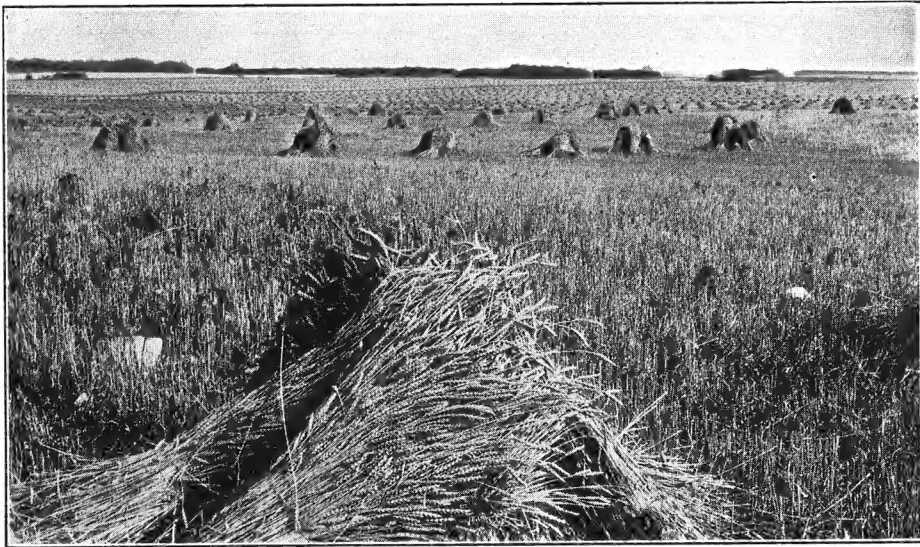
brought with them the varieties of wheat to which they were accustomed, and settlers from the United States did the same. The Mennonites, who came in 1873 and 1874, brought with them varieties which they had grown on the great treeless steppes along the Black Sea in Russia. Just when and by whom the now world-famous "Red Fife" reached Manitoba is not recorded by any historian, but it is probable that part of the seed wheat brought in from the United States, 1868-69, may have been of this variety, as a Wisconsin farmer named Clarke reported a yield of 36 bushels to the acre of it in 1860 and in a letter to the "Country Gentleman" gave the originator as David Fife, of Otonabee, in the then western Canada, now Ontario.

There is ample evidence of the fact that this David Fife was the first man to



Canadian Gov't Motion Picture Bureau photograph.

Some idea of what a wheat field looks like can be gathered from the above. One can understand what a machine would mean in the sowing and reaping of a field as large as this.



A Saskatchewan wheat field.



Wheat on the farm of the Manitoba Agricultural College, with college buildings in the distance.



Canadian Gov't Motion Picture Bureau photograph.

Wheat growing in Peace River district. Varieties include "Reward," "Garnet," and "Early Triumph."

grow this wheat in North America, but how he came by it and where it originated has been the subject of several romantic stories. Facts, early established, are that David Fife about 1842 had sent to a friend in Glasgow for some good seed wheat, expressing a preference for one of the Russian wheats. The friend sent the wheat from a cargo just arrived in port from Danzig, but failed to say whether it was a winter or spring wheat.

As it arrived in time for spring seeding, Mr. Fife planted it, but it was winter wheat, and only one plant with three heads matured. These Fife saved, as they were attractive, and evidently

become mixed with the cargo of winter wheat from Danzig. Last year (1904), amongst our newly-imported European varieties, was one under the name 'Galician' obtained through a seedsman in Germany. Galicia lies about 300 miles inland from Danzig. This Galician wheat struck me as being very like Red Fife."

Dr. Saunders then went on to explain that he had grown "Red Fife" and "Galician" side by side, and found them identical in all stages of development. He had milling and baking tests made and again found the wheats identical. The seedsman in Danzig, being applied to, said that some years before he had



Threshing scene in western Canada.

spring wheat. They were seeded in a sheltered spot next spring, did well, were duly harvested, and from that small beginning sprang all the "Red Fife" wheat which later was to make Canada famous. This, however, did not explain the origin of the seed.

The idea that it was a "sport" and really constituted a new variety did not satisfy Dr. Chas. E. Saunders, the Dominion Cerealist. In giving his evidence in 1905 before the Committee on Agriculture, he said: "It has always seemed to me probable that the kernel which David Fife obtained was merely a seed of some common European spring variety of wheat which by accident had

obtained the seed from Galicia where this wheat is still grown.

So from the Province of Galicia, via the Baltic and North Sea to Glasgow, thence across the Atlantic to Ontario, and from that Province via the United States came "Red Fife" wheat. In less than eight years after its arrival in Manitoba 857 bushels of it were shipped back to Ontario for seed, and by 1887 it had, under the grade, "Manitoba No. 1 Hard," blazoned the name of the Province to the four corners of the earth.

On October 13th, 1876, R. C. Steele of the Steele Briggs Company, Toronto, arrived in Winnipeg looking for seed wheat, as the wheat crop in Ontario was

practically a failure. He came via St. Paul and across the plains in a lumber waggon. Steele wanted seed wheat and he wanted it quickly, as river navigation might close at any time.

Higgins and Young, general merchants, undertook the task of assembling what wheat could be had. Steele wanted 5,000 bushels but all that could be assembled was 857 1-6 bushels, but it was weighed, sacked and on its way on October 21st. The price per bushel to the growers was 85c, the freight to Toronto 35c.

The great outward movement of wheat from the Canadian prairies had

Some of this wheat weighed 64 pounds to the bushel.

✓ The first shipment of wheat from western Canada direct to Britain was made on October 17th, 1877. It was consigned by Robert Gerrie to Barclay & Brand, Scotland, and went out by Red River steamer to St. Paul, thence by rail to seaboard. There were no further shipments for some years, because the rapidly-growing population consumed all that was grown, and in addition many tons of flour were brought in from the United States by the railway from the south which reached Winnipeg from St. Paul in 1878.



Straight combining without swather.

begun. The "Manitoba Free Press" gives the names of the men who supplied the wheat, with the amounts each contributed, and they are worthy of once again being given to the world at large:—

G. R. Miller.....	Kildonan.....	204 bushels
John McIvor.....	Greenwood.....	17 $\frac{3}{4}$ "
J. W. Carleton....	Clear Springs....	80 $\frac{1}{2}$ "
H. Soar.....	St. Johns.....	154 "
F. Dick.....	Springfield.....	35 "
Neil McLeod.....	Victoria.....	22 "
Fobt. Black.....	Springfield.....	102 "
D. Donald.....	Springfield.....	94 "
John Spear.....	Springfield.....	44 "
Alex Gibson.....	Springfield.....	33 "
T. B. Robinson....	Rockwood.....	32 "
John Reich.....	St. Paul.....	40 "

✓ In 1884, however, the Canadian Pacific Railway was completed from Port Arthur as far west as Moose Jaw, and in that year the first shipment of wheat to Britain by an all-Canadian route was made by the late Thomas Thompson, of Thompson & Sons, Brandon. This shipment consisted of 1 000 bushels of "Manitoba No. 1 Hard." It was sacked and shipped by rail to Port Arthur, from there by boat to Owen Sound, thence by rail and water to seaboard, was transhipped to an ocean vessel and was landed on the docks at Glasgow exactly 21 days out from Brandon and western Canada's "all-Canada export route" was established



Canadian Gov't Motion Picture Bureau photograph.

A sea of golden grain. Gathered into elevators it is again sent forth to the four corners of the world.

With the completion of the C.P.R. from coast to coast in the late fall of 1885, an enormous influx of immigration started. The Riel rebellion of the spring of 1885, while it curtailed the wheat acreage of that year, nevertheless stimulated interest in wheat growing. The high prices paid for United States flour for the troops opened the eyes of incoming settlers to the possibilities of money in rapid production. The wide prairies lay ready to the plough, and the Mennonites had convinced the doubting Thomas of the value of the open plains for wheat production.

Strange as it may seem, the Red River colony had three experimental farms before 1850. The first, started by Lord Selkirk, had a full equipment of expensive buildings, "yet, when complete," according to Ross, "there was not an ox to plough with or a cow to milk." The project was abandoned a year after Lord Selkirk's death. It had cost \$10,000. The second was started by Governor Simpson of the Hudson's Bay Company. It was equally a failure and cost \$17,500. The colony profited to the extent of a

very fine stallion brought from England at a cost of \$1,500. This sire greatly improved the breed of horses. The third farm was started by a London Committee, but the settlers had better crops than the model farm, and in 10 years it, too, was abandoned with a net loss of \$37,500. In all 55,000 had been thrown away.

There were no more experimental farms until 1887 when one was located at Brandon and another at Indian Head, the first in charge of S. A. Bedford (now Dr. Bedford) and the second in charge of Angus McKay, both experienced and successful farmers on the prairies. The year previously the Central Experimental Farm, Ottawa had been established, with Dr. Wm. Saunders as director of that and all subsequent experimental farms and stations.

With the rapid extension of wheat areas west and north, "Red Fife" wheat came more and more into general use and it was made the basis of grades which were established under the "General Inspection Act" of Canada as soon as grain commission houses were estab-



Canadian Gov't Motion Picture Bureau photograph.

Loading grain into a lake carrier at Port Arthur, Ontario. The man in the foreground is taking samples of wheat for inspection and grading.

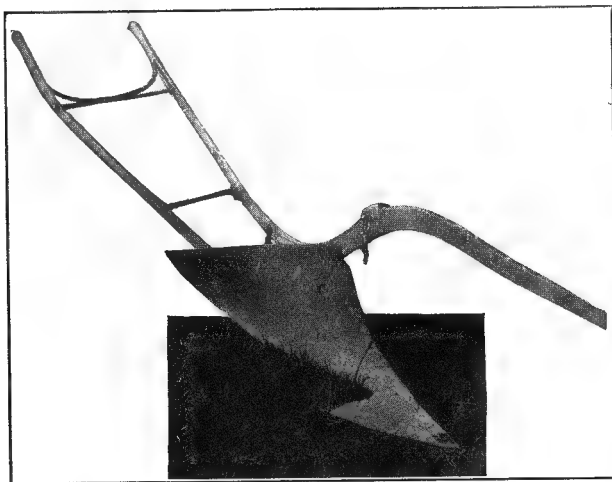
lished, which was in 1881, and the yield and quality satisfied everyone. To this day milling houses in Britain claim there never has been wheat sent to the British market which has equalled in milling value the "Red Fife" wheat of those early years. It had one fault, however; it was rather late in ripening, and as wheat areas extended there were increasing evidences of damage and loss from early frosts. This was emphasized by the almost total loss of the crop of 1888, when very large areas were caught in the blossom and great fields three to four feet high stood golden in the sunlight of August with absolutely nothing in the heads.

Naturally, it followed that almost the first work of the experimental farms was a search for a wheat with all the virtues of "Red Fife" and which could be counted upon to ripen six to eight days earlier. Dr. Saunders set about work in earnest and associated with himself his two sons, C. E. and A. P. Saunders. The world was scoured for hardy early ripening and high quality wheats, and for a time Dr. Saunders thought he had

found what was wanted in "Ladoga," a Russian wheat growing north of the St. Petersburg of that day and in a latitude 600 miles north of Winnipeg. It was not until 1892 that enough was accumulated to make a commercial test of its milling and baking qualities, and here it failed completely. It lacked strength and made a yellow flour of coarse texture.

In the meantime, as early as 1888, Dr. Saunders, following somewhat the same lines with wheat as he had previously done to improve fruit, had tried cross-breeding, namely to take the pollen from one kind of wheat and place it on the stigma of another kind from which the stamens had been removed, a delicate and interesting operation which the writer had the opportunity of watching when it was first performed at Brandon Experimental Farm in 1892 by Dr. A. P. Saunders.

One of the most successful of these crosses was of "Red Fife" as a male parent and "Ladoga" as the female. The resulting varieties were named "Preston" and "Stanley," while a cross



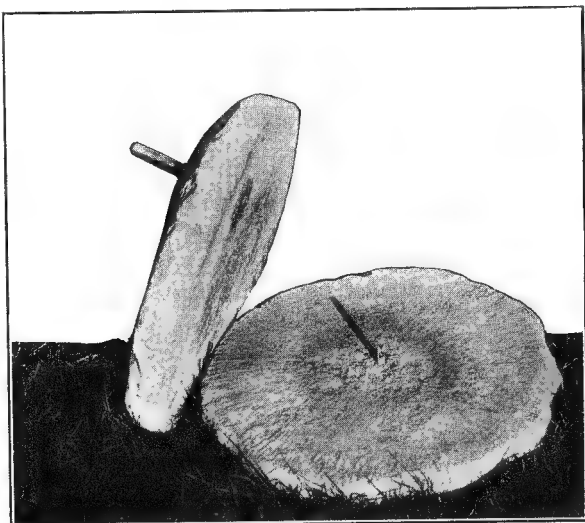
In studying the collection of implements first used by the Selkirk settlers in 1824, of which this wooden plow forms a part, one can read much of the history of those pioneers of the west. This plow is to be found to-day in the Museum of the East Kildonan Agricultural Society.

of "White Fife" and "Ladoga" gave "Huron" and "Percy." "Preston" was grown quite extensively in the more northern parts of Saskatchewan and Manitoba and quite a number of fields of it are still to be found year after year, while quite strong admixtures of it are found in fields of other varieties. It ripens much earlier than "Red Fife," but has never equalled it in milling and baking quality. It is still grown, under various names, to a considerable extent in the United States.

Year after year the work went on, thousands of crosses being made, and thousands rejected. Then for a time the work slackened and little was heard of it; possibly early frosts were less frequent as larger areas were brought under cultivation. Dr. Saunders was busy with the growing number of farms under his supervision and gave less personal attention to cross-breeding. The varieties which had been developed from cross-breeding and deemed worthy of

perpetuating were seeded from year to year, carefully harvested, and much material gathered. Finally in 1903, Dr. Charles E. Saunders was appointed as Dominion Cerealists to give his whole attention to plant breeding. He fell heir to the mass of material which had been accumulated and set about the difficult task of re-selecting the best heads from more than 100 varieties, each with several strains. One of the most exasperating things about the cross-breeding is that the resulting heads may resemble neither parent nor each other. In 1904 Dr. Saunders selected a single head which he specially liked and found it came from a cross-breeding made by his brother, A. P. Saunders,

in 1892. The records showed that this cross had for a male parent "Red Fife" and for a female parent "Hard Red Calcutta," but as the latter is a trade term for a mixture of several varieties of wheat the exact type of the mother may



Quern or hand mill of the early Selkirk settlers in use up to 1850. This mill was originally sent out from Scotland by Lord Selkirk for the people he had settled upon the land in the west.

never be known. The reproduction of the resultant variety from the first cross brought a mixture of types, and from this mixture Dr. Saunders selected and planted the kernels from one head only. The result was less than a pound of seed. The reproduction went on from year to year until out of the crop of 1906-7 enough was obtained to permit of making flour in a laboratory mill and baking therefrom tiny loaves of bread.

It is not difficult to imagine the breathless anxiety with which these tests were watched and the jubilant sigh of relief when the loaves emerged from that little oven all that good bread ought to be.

In the spring of 1907 a small quantity of seed was tested in plots at Indian Head, and by 1909 the new wheat, named "Marquis," was fairly launched. Its use spread rapidly all over western Canada and to all the spring wheat States of the Union. For a few years it had no rivals, and to day forms 80% of the wheat crop of Western Canada.

The constant pushing of the wheat belt further and further north increased the demand for still earlier ripening wheats as did also the increasing prevalence of stem rust and "Marquis" has now two important rivals, namely "Garnet" and "Reward."

"Garnet" is the result of, first, a cross of "Red Fife" and "Ladoga," giving "Preston," then of "Preston" crossed with "Early Riga" giving "Garnet." "Early Riga" comes from a cross of "Gehun" and "Onega."

"Garnet" is claimed to be 10 to 12 days earlier than "Marquis" in some districts, is a heavy yielder, gives a strong flour with very yellow shade which from a Canadian milling point is a serious objection. It is also more difficult to grind. To date Canadian inspection regulations do not allow of its being graded higher than "Number 2 Northern."

"Reward" is so new a claimant for honours that when in 1927 it won the championship at the Royal Agricultural Show at Toronto, an attempt was made to disqualify it as a wheat not on the market and available for seed. To-day millions of bushels are grown and at the International Hay and Grain Show at Chicago in 1929 more prizes were taken



Left to right, Mrs. H. G. L. Strange, wife of Major Strange, International Prize winner in wheat; Samuel Larcombe of Birtle, Manitoba, who won the world prize in 1917, and Mrs. Roy, wife of the President of the Society of Technical Agriculturists in 1927.

by "Reward" than by any other variety of hard spring wheat. It has one weak spot. It shows a decided tendency to loose smut, a difficult thing to treat on the individual farm. If this can be overcome it will give "Marquis" and "Garnet" a hard run for supremacy, as it is earlier than "Marquis," nearly as early as "Garnet," yields well, and makes a strong flour, closely resembling that from "Marquis." "Reward's" pedigree is as follows: "Ladoga" and "White Fife" crossed gave "Alpha." "Huron" and "Percy"; "Alpha" crossed with "Hard Red Calcutta" gave "Fraser"; "Fraser" crossed with "Gehun" gave "Prelude"; "Prelude" crossed with "Marquis" gave "Reward."

It is interesting to note that all these early-ripening wheats have strains of "Red Fife" and have inherited much, if not all, of its wonderful flour-making qualities. "Garnet" and "Reward" both have "Ladoga" amongst their ancestors. "Garnet" has "Early Riga" for one parent and "Early Riga's" father was



Canadian Gov't Motion Picture Bureau photograph.

Effect of fruit fly on wheat plot, Central Experimental Farm, Ottawa.



Swather at work.

"Gehun" from 11,000 feet up on the Himalayas, and the mother "Onega," from Archangel in northern Russia. "Marquis" and "Reward" have a common ancestor in "Hard Red Calcutta." "Red Fife" came from "Galician" and dates would indicate that at the time it was carried into Germany Galicia may have belonged to Russia. All of which goes to show that the most satisfactory wheats for western Canada to-day came from combinations of wheats from Russia and the Himalayas.

Much is said of the influence of the development of early-ripening varieties of wheat in pushing the wheat belt further

member for the Peace River in the first legislative assembly after the province of Alberta was formed. Plans are on foot to raise a cairn to commemorate the work of this pioneer agriculturist.

Again in 1893, at the Columbia Exhibition in Chicago, the championship wheat came from Fort Vermillion on the Peace River. This may have been "Early Ladoga" as Dr. Wm. Saunders had introduced that variety into the Peace River country in the late eighties. To-day in the section of the Peace River country beginning just west of Lesser Slave Lake at High Prairie, and including the districts of McLennan, Donnelly,



Canadian Gov't Motion Picture Bureau photograph.

Just what a wheat farm in western Canada looks like can be seen from the above photograph, which is typical.

north until to-day wheat is being successfully ripened within 200 miles of the Arctic Circle. However, growing wheat far north is not as new an enterprise as at first glance it might appear.

In the summer of 1876, just a couple of months before Manitoba made her first outward shipment of wheat, a small parcel of wheat from either Fort Chipewyan or Fort Vermillion on the Peace River won the World Championship at the American Centennial at Philadelphia. This wheat was grown at one of the missions of the Peace River by the Rev. John G. Brick of the Church of England, whose son Thomas Allan Brick was the

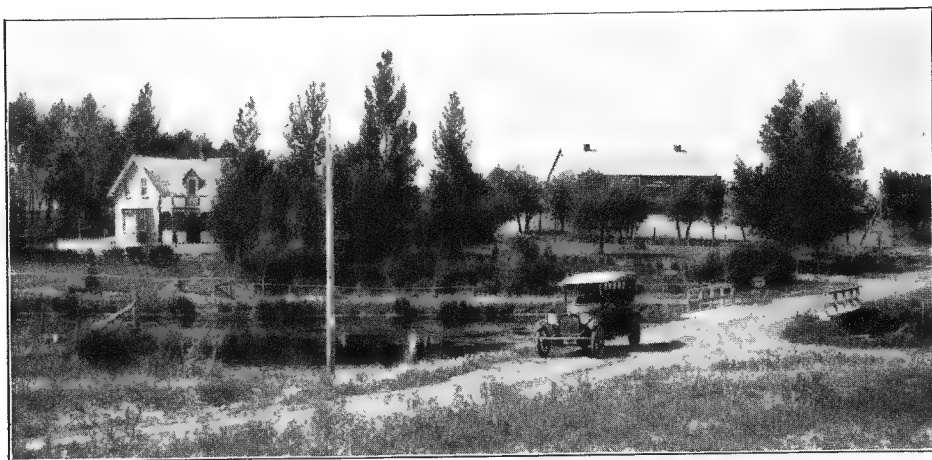
Falher, Gerourville, Judah, Peace River Crossing, Grimshaw, Browndale, Berwyn, Blue Sky, Fairview, Spirit River, Rycroft, Sexsmith, Grande Prairie, Wembley, Beaverlodge and Hyth, there were over 500,000 acres in wheat this past season. This will be increased for 1931 and this acreage takes no account of seedings at Fort Vermillion, Fort St. John and the Peace River Block in British Columbia. Herman Trelle and his wife are sustaining the reputation of the northland in world prize winning.

The early colonists of the Red River had no monopoly of enemies to their growing crop. Indeed the passing years

have intensified rather than diminished the enemies. Western stem sawfly, cutworms and wireworms have taken their toll of western wheat crops. There was no serious return of grasshoppers from 1868 until 1918, when, just 100 years from their first appearance in the valley, they came again. Now control methods are understood and poison bait is liberally used for both grasshoppers and red-backed cutworms, but during the season of 1930 serious damage was done by pale western cutworms, a species which is migratory, works underground and cannot be reached by poison. A further outbreak is anticipated this coming summer. To lessen this danger

The Dominion Rust Laboratory at Winnipeg has already done valuable work looking to a rust-resistant wheat. Dr. J. H. Craigie's discovery of sex in rust spores and T. Johnson's discoveries of how to shorten the dormant period of spores from six months to six weeks, and how to cause hot-house-produced spores to germinate, are big strides along the road to success.

A rust-resistant wheat, resistant to all the many forms of stem rust, is the only hope of salvation. The invasion is unquestionably from the south, as host plants have not been found on the Canadian side of the line. By use of aeroplanes this has been well-authen-



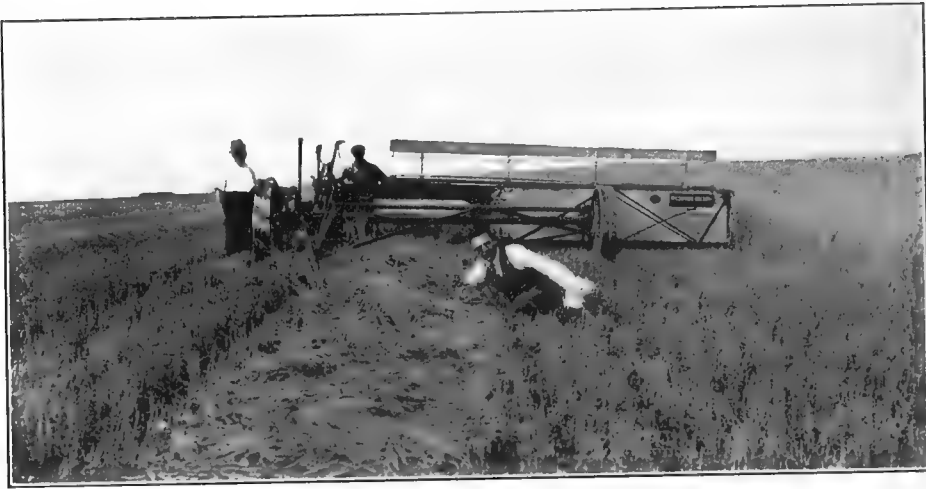
Whitefield Farm, the original homestead of G. C. Cole, Burbank, Manitoba, who planted trees at the same time as his first crop of wheat.

as far as possible, entomologists strongly urged leaving fallows crusted on top to limit their egg-laying activities.

✓ By far the most serious menace to western wheat crops is the black stem rust. The first serious outbreak occurred in 1904, the second, not so severe, in 1911, but an extremely severe one came in 1916, when it was figured that Western Canada's loss was at least 100,000,000 bushels. While there has not been as severe an outbreak since, there have been heavy losses in several years and some loss every year. The earlier-ripening wheats have lessened the evil as in a sense they get ahead of it, though none is really rust-resistant.

ticated. It is impossible to fight an enemy that flies through air 4000 feet above the fields, and as wind and weather favour drops down upon the defenceless crops by the millions. The only possible protection is a variety of wheat which refuses to receive and harbour these spores and the production of such a wheat in the near future is reasonably assured.

As soon as wheat began to be produced in any quantity in the west the question of storage became important. Lumber was scarce and dear, the farmers had little money, and the Canadian Pacific Railway, the only railway, did not wish to risk more money, so offered free sites



French agricultural expert trying moisture swath in Manitoba field. He had been sent direct from France to ascertain the possible utility of combines and swathers in France.

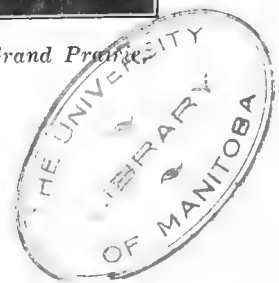
to companies willing to risk building elevators and guaranteeing to accept only grain shipped through them. At first there was little check and "Line Elevator Companies," as they were called, did pretty much as they pleased in the matter of weights and dockage, and farmers were obliged to accept their figures. This led to 10 years or more of discontent which culminated in an inquiry commission. On the report of that commission the "Manitoba Grain

Act" was passed in 1898, and a warehouse commissioner was appointed to see that the Act was lived up to. The railway had to establish loading platforms and maintain equitable car distribution. There were a number of amendments to the Act from time to time, and in 1912 an entirely new Act, known as "The Canada Grain Act," was passed and the "Canada Grain Commission" established.

Up to 1904 inspection of grain had been under the "General Inspection Act"



Fine farm and buildings of D. B. Cooke 1 1/2 miles north-west of Grand Prairie, Peace River.



of Canada, but in that year, in view of the growing importance of the western crop, a "Grain Inspection Act" was passed, and the "contract grades" more definitely established. All down the years since the passing of these Acts there have been changes and improvements until during 1930 the Grain Act has been entirely re-written so as to include the Inspection Act; the scope of the Board of Grain Commissioners enlarged until possibly no other country in the world has so elaborate a system for the protection of grain trading. Since the first commission in 1898 there have

to \$15,000. The original Exchange was in one room. To-day it occupies a ten-storey building covering a city block.

Up to January 27th, 1903, the Exchange did only a cash business; on that date a "future" market opened and a clearing-house was established. From a few trades in 1903 clearings had reached 400,000,000 in 1912, and have been heavier in many a year since that date.

With wheat the great cash crop of western Canada the farmers have from early days taken a keen interest in its marketing. This led to many organizations where the problems were discussed.



Canadian Gov't Motion Picture Bureau photograph.

Grinding machines in Canadian flour mill, one phase of this very important Canadian industry.

been many commissions of inquiry into grain trading, and each has been followed by additional legislation.

The Winnipeg Grain and Produce Exchange was organized in 1881 with 25 members, each of whom paid \$5 to cover organization expenses, but it never really functioned until the crop of 12,351,724 bushels in 1887 was so far in excess of local requirements that markets had to be found. A meeting was called and the Exchange reorganized with a membership fee of \$15. There were 10 members. To-day there are more than 300 and memberships are held at \$12,000

These developed commercial organizations and lines of co-operative elevators and these in turn have developed Wheat Pools in each of the three Prairie Provinces, and a central selling agency. The Pools control the selling of about 50% of the entire wheat crop. The Pools own 1608 elevators at country stations, 30,000,000 bushels of terminal storage at the head of the Great Lakes; 1,000,000 bushels terminal storage at Victoria, B.C.; 6,500,000 at Vancouver and 1,250,000 at Prince Rupert. Headquarters of this great organization are at Winnipeg, where the Pools occupy a



Farmstead of F. M. Singer-Davies, three miles north, one mile west of Grand Prairie, Peace River.

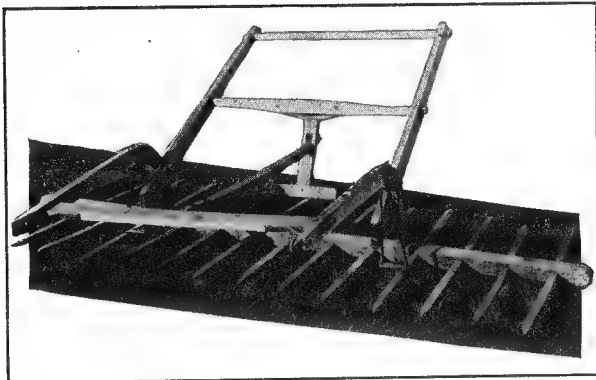
10-storey building and have established elaborate statistical and research sections.

Western Canada now has the option of exporting her wheat through eight ocean ports; five on the Atlantic,—Montreal, Quebec, Sorel, St. John and Halifax; three on the Pacific,—Victoria, Vancouver and Prince Rupert; and one on the Arctic,—Churchill. The terminal storage for grain is enormous and Canada has the fastest grain-loading ports in the world.

At the head of the great lakes the Canadian Pacific Railway commenced the erection of the first elevator at Fort William in 1883, and great was the amusement of the public at the idea that 1,500,000 bushels of wheat would ever be raised in Manitoba to fill it. To-day the lake front has 96,000,000 bushels of storage and it is often used to capacity. At the lower end of the lakes where lake freighters discharge for transshipment by canal and rail to ocean, there are 31,500,-



Junior Seed Growers' Club judging in Standing Crop Competition in Manitoba.



A wooden rake used by the Selkirk settlers. This implement was in use before 1824 and is at present in the Museum of the East Kildonan Agricultural Society.

000 bushels of storage. Montreal, the ocean port, 1,000 miles from salt water, has a capacity of 15,000,000 bushels of storage, and in spite of a rapid loading equipment is often congested. Quebec has 4,000,000 bushels of storage; St. Johns, 2,200,000; Halifax, 1,500,000; Victoria, 1,500,000; Vancouver, 12,000,000; Prince Rupert, 1,250,000; Churchill, 2,500,000, with provision for extending to 10,000,000 bushels. The Dominion Government, to aid in providing terminal storage nearer to the wheat fields to facilitate the rapid return of cars to points of original shipment, has erected,

at strategic points, special storage elevators with a capacity of 14,200,000 bushels. The various grain companies, including the Pools, have erected at country shipping points storage to the capacity of 220,000,000 bushels.

The railway equipment for moving the wheat is enormous, and the distribution of cars for this work one of the sights of late summer in the west only surpassed when the great grain trains begin moving east and west. Trains going east, with all down-grade to lake head, frequently have 80 cars behind a single engine. Mountains have been

levelled and others tunnelled to make easy the pathway to the Pacific ports from which the loaded vessels find their way to Britain and Europe via the Panama Canal.

With the development of western wheat production, the milling industry has grown to gigantic proportions and Canada now has 504 mills with a daily capacity of 136,370 barrels. All except 20,000,000 bushels of wheat are grown in the west, but the great bulk of the milling is done in Eastern Canada, 245 of the 504 mills being located there. Canada not only supplies her own



It is not alone sufficient to be able to grow wheat. One must also be able to judge a standing crop. Here we see a group deciding on the merits of an improved seed.



Above—Sample of Alberta championship wheat of 1930, grown by Crawford Brothers, Athabaska Landing.



Left—Grand championship wheat of Alberta in standing crop in 1930, grown on farm of Crawford Brothers, three miles west of Athabaska Landing and 107 miles north of Edmonton. The variety is "Garnet."



Typical farm and farm buildings in district of Dauphin, Manitoba.



Ocean vessels loading grain at Montreal.



Birtle, Manitoba, home town of Samuel Larcombe, winner of the International Championship for wheat in 1917.



Combine picking up after swather.

need for flour, but ships to 45 other countries.

All these marvellous things have grown out of the little wheat plots hoed in by the Selkirk settlers in 1813—the development of 117 years. Lord Selkirk, the founder of the colony on the Red River, had a vision of what the great plains might mean in food supplies of the world, but he died in 1821 of a broken heart, feeling that he had failed.



(In the preparation of this account of the development of wheat in Western Canada I am indebted to Dr. Buller and Dr. Dondlinger, Alexander Ross's Red River and the staff of the Manitoba Provincial Library. The development of the west since August of 1882 I have watched with my own eyes and with ever growing interest. It is not a small thing, this growth of a nation's wheat fields from 6,000 acres to 24,000,000 acres in 80 years—the life of an individual).

WINNERS OF WORLD
CHAMPIONSHIPS FOR WHEAT
GROWN IN WESTERN CANADA

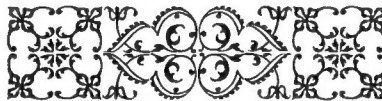
Seager Wheeler, Rosthern, Sask., in 1911, 1914, 1915 and 1918. At the time of his first winning it was stated by the Minister of Agriculture for Saskatchewan, Hon. W. R. Motherwell, that he had added \$5 per acre to the value of every acre of land in Saskatchewan north of Saskatoon. The variety which won was "Marquis" on that occasion. The prize of 1911 was \$1000 in gold offered at the New York exhibition of that year by the Canadian Pacific Railway Company.

Other winners of International honours in wheat for Saskatchewan have been: J. C. Mitchell, Dakinda; Paul Gerlach, Allan; J. S. Fields, Regina; R. O. Wyer, Luseland.

For Manitoba the winners have been: Dr. S. J. Thompson, Carberry; Samuel Larcombe, Birtle.

For Alberta the winners have been: J. Holmes, Raymond; Major Strange, H. G. L. Fenn; Herman Trelle, Wembley, Peace River Country; Jos. H. B. Smith, Wolfe Creek.

Explanatory Note by Miss Cora Hind:—Since the above article was written the situation in regard to the wheat pools has changed. It was found necessary to practically close the Central Selling Agency and in 1931 permission was given to signers of pool contracts to sell in the open market or pool their wheat as they saw fit and a very large number of their signers availed themselves of this permission to sell in the open market so that the amount of wheat pooled out of the crop of 1931 was relatively small. In the spring of 1930 the pools appealed to the provincial governments to guarantee their indebtedness to the banks on the crop of 1929 and this was done and in 1930 the Dominion Government guaranteed the banks for the advances made to the pools for the handling of the 1930 and later for the 1931 crop also.—E. C. H.





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